

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
OKABE, Masao

No. 602, Fuji
Bldg., 2-3, Marunouchi
3-chome, Chiyoda-ku, Tokyo
1000005 Japan

PCT



WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing (day/month/year) 12.7.2005	
Applicant's or agent's file reference 10009228WO01	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/JP2005/006226	International filing date (day/month/year) 24.03.2005
Priority date (day/month/year) 30.03.2004	
International Patent Classification (IPC) or both national classification and IPC Int.Cl.⁷ H01L27/146, 21/339, 21/8234, 27/088, 29/762	
Applicant CANON KABUSHIKI KAISHA	

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Date of completion of this opinion 23.06.2005	
Name and mailing address of the ISA/JP Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer Haruka ONDA Telephone No. +81-3-3581-1101 Ext. 3498

Form PCT/ISA/237 (cover sheet) (January 2004)

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WRITTEN OPINION OF THE
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Box No. 1 Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2-10	YES
	Claims	1	NO
Inventive step (IS)	Claims	2-10	YES
	Claims	1	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations

D1: JP 2000-353756 A (TOSHIBA CORPORATION) 2000.12.19, The whole document (Family: none)

D2: JP 2002-329793 A (MITSUBISHI ELECTRIC CORPORATION) 2002.11.15, The whole document (Family: none)

D3: JP 2000-077613 A (NEC CORPORATION) 2000.03.14, The whole document

D4: JP 7-321220 A (NIPPON DENSO CO., Ltd.) 1995.12.08, The whole document ,Fig.5 (Family: none)

D5: JP 2004-158508 A (NIPPON TEXAS INSTRUMENTS INCORPORATED) 2004.06.03, The whole document (Family: none)

D6: JP 2003-333431 A (VICTOR COMPANY OF JAPAN, LTD.) 2003.11.21, The whole document (Family: none)

The subject matter of claim 1 is disclosed in the document D1 cited in the ISR. As shown in Fig.9 (a) and (b), both the surface channel type n type MOS transistor and the buried channel n type transistor have n type impurity region below its gate electrode of said surface channel type and buried channel type MOS transistors.

The subject matter of claims 2 to 10 meets the requirements of novelty and an inventive step.

The closest prior art document D1 discloses a semiconductor apparatus but doesn't disclose a solid state image pickup device.

The prior art documents D5 and D6 disclose a solid state image pickup device but don't disclose the device comprising a pixel having a plurality of MOS transistors, and an impurity region which conductive type is the same as said MOS transistors is provided below a gate electrode and between source and drain region of said MOS transistors

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The term [...between source and drain regions ...] used in Claim 1 and [...below a gate and between source and drain regions of said buried channel type and surface channel type MOS transistors ...] used in Claim 2 render the definition of the subject matter of said claim unclear for the following reason:

Consequently they render the position of a first conductive type impurity region unclear.